Claims

1. Device for diagnostic NO measurements, characterized in that said device comprises a NO sensor (11), an inlet (1) through which a patient exhales at a predetermined flow rate and pressure, a buffer chamber (7) for temporarily storing a portion of the exhaled air, and means (10) for feeding said portion of the sample to said NO sensor at a flow rate suitable for said sensor.

2. A device according to claim 1, wherein the device comprises a flow regulator (6) for controlling the exhalation flow.

3. The device according to claim 1, wherein the means (10) for feeding said portion of the sample to said NO sensor operates to create a steady flow of about 0.5 to 10 ml/s during a time period longer than the duration of the exhalation.

4. The device according to claim 1, wherein the device comprises means (12) for equalizing the humidity of the sample.

5. The device according to claim 4, wherein said means for equalizing the humidity of the sample consist of a length of tube, made from a catalytic membrane material.

6. The device according to claim 1, wherein the device comprises means for verifying the parameters of the inhalation and controlling the parameters of exhalation.

7. The device according to claim 6, wherein said means comprise a pressure sensor (2) and means for giving feedback to the patient.

8. The device according to claim 6, wherein said means further comprise a flow sensor and means for controlling the flow and/or giving feedback to the patient.

9. The device according to claim 6, wherein said means further comprise a pressure sensor (2) capable of measuring absolute pressure in order to make it possible to compensate for varying partial pressure of NO depending on variations in ambient pressure.

10. The device according to claim 1, wherein the buffer chamber (7) is a maze.

11. The device according to claim 1, wherein the buffer chamber (7) consists of a cylinder with a movable piston.

12. The device according to claim 1, wherein the buffer chamber (7) consists of a length of tube.

13. The device according to claim 1, wherein the device comprises a NO-scrubber through which a patient inhales directly prior to exhaling into the device, thus ensuring that the dead space of the respiratory tract of the patient is filled with NO-free air.

14. The device according to claim 1, wherein the device further comprises an interface for receiving a smartcard on which data linked to a specific user can be stored, and onto which measurement data can be recorded.

15. The device according to claim 14, wherein the device is capable of adapting to different users or different user groups, based on the data stored on the smartcard.

16. The device according to claim 1, wherein said NO sensor is an electrochemical sensor.

17. The device according to claim 1, wherein the sample flow rate when led to the sensor is lower than the exhalation flow rate.

18. A smartcard suitable for use in a device according to claim 1, said smartcard carrying data concerning an individual patient or patient group, wherein at least the following data are recorded on said smartcard:

date and time of measurement;
measured FE_{NO};
sensor ID No; and
device ID No.

19. A method for diagnostic NO measurements using a device comprising a NO sensor, wherein:

- a patient exhales into said device,

- the exhalation flow rate and pressure is controlled to a preset value, respectively,
- a sample of the exhalation air is temporarily stored in a buffer chamber,
- said sample is fed to said electrochemical NO sensor at a flow rate suitable for said sensor, and
- the NO concentration is determined in said sample.

20. A method according to claim 19, wherein the patient inhales NO-free air prior to exhaling into the device.

21. A method according to claim 19, wherein the patient inhales through a NO-scrubber integrated in said device, supplying NO-free air to the patient, prior to exhaling into the device.

22. A method according to claim 19, wherein the patient is given audible or visual feedback during the inhalation and exhalation steps, in order to support the correct performance of said steps.

23. A method according to claim 19, wherein the exhalation flow rate is controlled to a value of about 20 to 800 ml/s and the rate at which the sample is fed to the sensor is about 0.5 to 10 ml/s.

24. A method according to claim 19, wherein said NO sensor is an electrochemical sensor.

25. A method according to claim 19, wherein the sample flow rate when led to the sensor is lower than the exhalation flow rate.

26. A method according to claim 19, wherein at least one of the following steps is included:

- the patient enters information relating to his/her intake of a medicament; and
- the patient subjectively assesses his/her state of health and enters corresponding information.

27. A computer program comprising the instructions for performing the method according to claim 19.

28. A computer program according to claim 27, when stored on a medium.

29. Method for the diagnostic determination on NO in a gas sample, where the parameters governing the taking of the sample are different from the parameters optimal for the accuracy of the NO measurement, characterized in that a device according to claim 1 is used.